

## CLAIMS:

1. Variable focus spectacles comprising a spectacle frame and at least one variable power lens, wherein said lens comprises a transparent rear wall (110), a transparent front wall (120), a cavity (140) formed between the transparent front wall (120) and the transparent rear wall (110), first and second immiscible fluids of differing refractive index  
5 contained within said cavity, and electrodes (150,160) to which a potential difference may be applied to change a contact angle between an interface layer of the two fluids and the front wall of the lens.
2. The variable focus spectacles of claim 1, wherein the transparent front wall  
10 (120) joins with the transparent rear wall (110) at peripheral regions thereof to form an acute internal angle at their joining region.
3. The variable focus spectacles of claim 1 or 2, wherein the first and second  
15 fluids are of substantially identical specific gravity.
4. The variable focus spectacles of any preceding claim, wherein the electrodes  
comprise a ring-type electrode (150) which extends around an internal periphery of the transparent front wall (120), so as to form a first electrical contact and a further electrode  
20 adjacent an internal surface of the rear wall.
5. The variable focus spectacles of any preceding claim, wherein the first fluid is  
the fluid nearest the transparent front wall (120), whilst the second fluid is the fluid having a boundary with the transparent rear wall (110) and the first fluid comprises an oil, whilst the  
25 second fluid comprises an electrolyte.
6. The variable focus spectacles of claim 5, wherein the second fluid comprises a  
water /salt mixture having a refractive index different to the refractive index of the first fluid.

7. The variable focus spectacles of any preceding claim, further comprising adjustment means for adjusting the strength of an electric field to be applied between the electrodes (150,160).
- 5 8. The variable focus spectacles of claim 7, wherein the adjustment means comprises manual adjustment means.
9. The variable focus spectacles of claim 8, wherein the manual adjustment means comprises a variable resistor.
- 10 10. The variable focus spectacles of claim 7,8 or 9, wherein the adjustment means comprises automatic adjustment means for varying the focal length of the spectacles dependent upon a perceived distance of an object to be viewed.
- 15 11. The variable focus spectacles of claim 10, wherein the automatic adjustment means comprises a focal length determiner (230), a control unit (280) and a power supply V, wherein a reflected range finding signal from the focal length determiner (230) is processed by the control unit (280) to determine the desired focal length of the glasses and an appropriate output signal is passed to the electrodes (150,160) to bring about auto-focusing.
- 20 12. The variable focus spectacles of claim 11, wherein the focal length determiner (230) comprises a transducer mounted on the spectacle frame.
13. The variable focus spectacles of any of claims 7 to 12, further comprising lens strength determining means for measuring the strength of the lenses (100A, 100B).
- 25 14. Variable focus lens comprising a transparent rear wall (110), a transparent front wall (120), a cavity (140) formed between the transparent front wall (120) and the transparent rear wall (110), first and second immiscible fluids of differing refractive index contained within said cavity, and electrodes (150,160) to which a potential difference may be applied to change a contact angle between an interface layer of the two fluids and the front wall of the lens.
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